

N° 1550



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COMPLETE SPECIFICATION.

Improvements in Coin Operated Vending Machines.

I, JOHN WILLIAM MACKENZIE, of the Firm of Wheatley & Mackenzie, of 40 Chancery Lane, London, W.C., Chartered Patent Agents, do hereby declare the nature of this invention—which has been communicated to me by John A. Rule of Cincinnati, in the County of Hamilton and State of Ohio, United States of America, Gentleman—and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

My invention relates to coin operated vending machines which may be set to vend articles of the value of one or more coins of small denomination or those of the value of a coin of larger denomination, in which when the machine is set in the first named position, the machine will deliver the article only when the coins of small value are dropped into it, and when the coin of large denomination is dropped into it will deliver both the article and the proper change, and in the second position will only deliver the article when the coin of larger denomination is deposited. The present invention may be said to be a development of that described in the Specification of my prior British Patent 13011 of 1906.

The object of my invention is a convenient means for setting the machine in its various aforesaid positions, to provide a means of preventing a coin of large denomination being deposited when the change has been exhausted, and to provide an expedient means of replenishing the change supply, and while certain elements by themselves, such as the change receptacles hereinafter described may not be broadly new in the art, they are new in the combination which will be hereinafter claimed.

Referring to the accompanying drawings in which like parts are indicated by similar reference letters wherever they occur throughout the various views.

Fig. 1 is a view partly in side elevation and partly in transverse section of the coin operated mechanism embodying my invention.

Figs. 2, 3 4 and 5 are diagrammatical detail views of the regulating arm the positions of which set the apparatus in positions for vending articles of different values.

Fig. 6 is a rear elevation of the apparatus.

Fig. 7 is a front elevation of the same, the sliding change receptacle of the same being removed.

Figs. 8 and 9 are transverse sectional detail views of the upper end of the coin chute, showing the movable auxiliary chute in different positions.

Fig. 10 is a longitudinal sectional view of the auxiliary chute.

Figs. 11, 12, and 13 are views similar to Figs. 8, 9 and 10, but of a modified form of chute.

Fig. 14 is a sectional view of rotating change receptacle.

Fig. 15 is a detail rear elevation of the change receptacle.

Fig. 16 is a sectional view of the change receptacle

Referring to the parts:

Upon base A are mounted a supporting wall *a*, two standards *a*¹ and *a*² and a box *a*³ within which are journaled the levers *a*⁴ for opening doors (not shown) for discharging the article to be vended.

Upon wall *a*, a coin chute B is secured which directs the coins from

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the deposit slot b in the plate b^1 to the lever c which controls the ratchet wheel C mounted upon one end of main shaft c^1 , the other end of which carries swinging arm c^2 whose end c^3 stands in the path of levers a^4 , to strike them successively each time ratchet wheel C is released by lever c . Secured to standard a^3 is a change chute D whose lower end stands above change cup, d , and whose upper end extends into the cylindrical housing d^7 which is secured to wall a and within which is journaled the cylindrical coin receptacle d^8 .

Coin chute B is divided by partitions into three ways, a penny way b^2 , a half-penny way b^3 and a six pence way b^4 . Half penny way has above its upper end a flange b^5 (shown in Figs. 8, 9, 11 and 12).

The coins are directed into these ways by an auxiliary chute b^6 (see Figs. 11—13) which is pivoted at b^7 in coin chute B below deposit slot b . Auxiliary chute b^6 has a penny ledge b^8 , a half penny ledge b^9 and its bottom b^{10} is of the width of the diameter of a six pence. These respective penny, half penny and six pence ledges of the auxiliary chute register with the corresponding ways in the coin chute B .

The purpose of pivoting the auxiliary chute is to adapt it for regulating the passing one half penny or two half pennies at a time into the half penny way. It may be fixed so that the half penny ledge normally registers with flange b^5 (as shown in Fig. 12) from which position it is moved by the weight of an additional half penny, so that the half penny ledge falls to register with the half penny way. The position of the auxiliary chute is regulated by a weighted arm b^{11} which is pivoted to wall a , one of whose ends supports the auxiliary chute and the other of which is itself supported by an arm b^{12} , which is secured to a block b^{13} which is pivoted to wall a . Block b^{13} has secured to it a weighted lever arm b^{14} whose unweighted end stands in the path of a finger e which projects from a hub e^1 mounted in plate b^1 . Hub e^1 carries an index finger E . Index finger E may be turned to one of four positions, indicated upon plate b^1 by numerals 2, 1, 3 and 5. When it occupies position 2, as shown in Fig. 5, lever arm b^{14} permits the weighted end of lever b^{11} to occupy its lowermost position in which that lever then carries auxiliary chute b^6 upward so that the half penny ledge registers with flange b^5 ; the weight on lever b^{11} is such that then it will take two half pennies to overbalance it and permit the auxiliary chute to deposit the two half pennies into the half penny way. When index finger E occupies position 1, the half penny ledge of the auxiliary chute stands below flange b^5 .

Into the lower end of half penny way b^3 projects lever c which controls ratchet wheel C . The end of lever c carries a block c^1 which stands below all of the coin ways. Above block c^1 a block d^2 is located in penny way b^2 , and a block f in six pence way b^4 . Block d^2 is carried by a lever d^4 , which is pivoted at d^5 to wall a , and carries a finger d^6 to contact arm d^7 , which is pivoted to the wall and at its upper end has a finger projecting through a perforation in wall a to engage teeth d^{14} upon the periphery of change receptacle d^8 . When a penny strikes block d^2 , it lowers it so that it strikes block c^1 , thereby simultaneously moving arm c to actuate the vending apparatus and moving arm d^7 to release the change receptacle to give the purchaser his change.

The device for setting change receptacle into position to be actuated by lever d^7 , and for preventing a penny being inserted into the machine when the change receptacle has been emptied, is as follows: Pivoted to wall a is a lever K , whose end k stands adjacent to deposit slot b , and whose opposite end k^1 is held by a coiled spring k^2 in contact with the periphery of change receptacle d^8 , which has a recess at d^{15} into which end k^1 takes when the last radial change compartment has reached change chute D . This carries end k across slot b and limits its size to a degree such that a penny cannot be inserted through it. Stud k^3 upon lever K engages teeth d^9 upon the back of change

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receptacle d^a . When a penny is inserted at slot b it moves lug k^3 out of engagement with one of the teeth d^5 and permits the weight of the coins in the change receptacle to rotate it slightly about journal pin D^3 , so that the lever d^7 takes in the teeth at d^{14} and holds the receptacle from rotation. When lever d^7 is drawn out of a tooth d^{14} the receptacle rotates until checked by the stud k^1 engaging the next tooth d^8 .

Coins in the half penny way, it is seen, actuate only lever c to move the vending apparatus.

Block f is carried by a bell crank lever f^1 , pivoted to wall a at f^3 and having its other arm engaging a sliding change receptacle F , which is mounted upon wall a adjacent to the change chute D . Receptacle F is divided by inclined partitions into compartments f^2 for receiving small coins. At each release of the receptacle a fresh compartment f^2 is lowered to register with the slot d^9 , leading into chute D to deposit its supply of coins therein. (See Fig. 1).

Change receptacle d^a consists of two circular disks D^1 D^2 secured together by cylindrical walls d^{10} d^{11} and having between them a series of radial partitions d^{12} and pins d^{13} , dividing it into a series of radial change compartments. Upon the back of disk D^1 are formed the teeth d^8 , which are engaged by lug k^1 upon lever K , and upon the periphery of disk D^1 are formed teeth d^{14} , which may be engaged by a lever D for locking the change receptacle when the machine is adjusted for selling a penny paper.

Lever G is pivoted upon wall a at g and has its end g^1 projecting into the path of an arm e^2 which is secured to the hub e^1 . As shown in Figs. 2—5, in all positions of index finger, E , except the position 5, arm g^1 is lowered so as to hold lever G out of engagement with the change receptacle, but that in position 5, arm e^2 raises the ends g^1 and causes lever G to lock the change receptacle d^a .

To prevent a half penny from operating the device when it is set for a penny article, I have provided the following mechanism: Pivoted to wall a is an arm H , which carries at its lower end a block h which has a perforation h^4 through it large enough to pass a six pence but not a half penny. The upper end h^1 of arm H projects into the path of an arm e^1 , which is secured to hub e^1 . A spring h^2 normally holds block h out of the half penny and six pence ways in chute B , but in position 5 arm e^1 contacts end h^1 and carries block h , through holes b^{16} and b^{17} in chute B across the half penny and six pence ways. In this position half pennies put into slot b would strike block h and be thrown out of chute B through holes b^{16} b^{17} , whilst six pences would pass through perforation h^4 .

If desired the machine may be made so that it will not be operated by a six pence, in which case the six pence way would be omitted from chute B and the auxiliary chute shown in Figs. 8, 9, and 10 would then be used.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

I. In a coin operated vending machine, the combination of a means for releasing a vending apparatus, a coin chute, a change receptacle, means for connecting the coin chute with the means for releasing the vending apparatus and the means for moving the change receptacle; means for directing coins of different denominations into the coin chute; an index arm and a means of connecting it with the change receptacle and with the means of directing the coins into the chute, whereby when the coin of larger denomination is directed into the chute, by the setting of the arm it locks the change receptacle, and when the arm is set to direct coins of both denominations into the chute, it unlocks the change receptacle.

II. In a coin operated vending machine having the general characteristics

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described a coin chute divided into ways for receiving coins of different denomination, a lever for locking a swinging arm which releases the vending apparatus and extending below the ways in the chute; a movable change receptacle, an auxiliary chute movable pivotally to direct the coins into the ways of the main chute; the coin index arm being on a hub, which is connected with the change receptacle, and with the auxiliary chute, for the purpose described. 5

III. In a coin operated vending machine having the general characteristics described an arm mounted adjacent to the chute for entering the ways for coins of lesser denomination for the purpose described.

IV. In a coin operated vending machine having the general characteristics described, a means for connecting the change receptacle and the deposit slot, whereby the slot is limited in size so as not to receive a larger coin when the change receptacle is empty. 10

V. In a coin operated vending machine having the general characteristics described, a cylindrical change receptacle mounted to rotate, change compartments in the receptacle so located that when released the weight of the coins moves the change receptacle, a change chute with which the compartments are made to register, and a releasing mechanism for the change receptacle operated by the releasing mechanism of the vending machine. 15

VI. In a coin operated vending machine having the general characteristics described and comprising a coin chute having ways for coins of different denominations and an auxiliary chute pivoted adjacent to the main chute as claimed in Claim 2, ledges of the character described in the main and auxiliary chutes, the ledges of the latter being adapted to register with the ledges of the main chute for directing the coins into the respective ways. 20

VII. In a coin operated vending machine, having the general characteristics described and comprising a coin chute divided by partitions into ways for receiving a coin of larger denomination and a coin of smaller denomination and an auxiliary chute a flange at the head of the way for the smaller coins, and means for causing the auxiliary chute to register with the flange until overweighted by more than one of the coins of smaller denomination for the purpose described. 25

VIII. In a coin operated vending machine having the general characteristics described a means for exerting a normal pressure upon the rotary change receptacle tending to rotate it, a lever pivoted with one end engaging the change receptacle and forming a primary lock therefor and with its other end projecting over the coin receiving end of the chute, a second lever forming a secondary lock for the change receptacle, a third lever locking the delivery mechanism and projecting beneath the coin passages, a fourth lever, one of whose ends is adapted to engage the second lever and the other of which projects below the chute for coins of larger denomination, all for the purposes described. 30

IX. In a coin operated vending machine having the general characteristics described connecting the means for controlling the passage through the way for the coins of smaller denomination with the index arm which is connected with the change receptacle for the purpose described. 35

X. In a coin operated vending machine having a rotary change receptacle and the general characteristics described, a housing within which the receptacle is rotatably mounted, the change chute being led into the housing.

XI. In a coin operated vending machine a locking mechanism for the vending apparatus, a coin chute divided into three ways for coins of three different denominations, a change chute, a rotating change receptacle and a sliding change receptacle, both mounted adjacent to the change chute, a means for locking the rotating change receptacle and a second means for locking the sliding change receptacle, means for connecting the rotating change receptacle with one of the ways for coins of larger denomination and means for connecting the sliding change receptacle with the other way for coins of larger denomination. 50 55

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tion, a means for connecting all of the coin ways with the locking mechanism for the vending apparatus whereby a coin in the way for the coins of smaller denomination, operates the locking apparatus for the vending machine only, and a coin in either of the other two ways operates the locking mechanism for the vending machine and its respective change receptacle.

XII. In a coin operated vending machine having the general characteristics described, independent change receptacles for the coins of larger denomination an arm to be moved across the way of a coin of smallest denomination, which arm acts as a coin diverting arm and is connected with the coin index arm whereby when the change receptacles are locked by the movement of the index hand, the coin diverting arm obstructs the passage for the smallest coin.

Dated this 21st day of January, 1907.

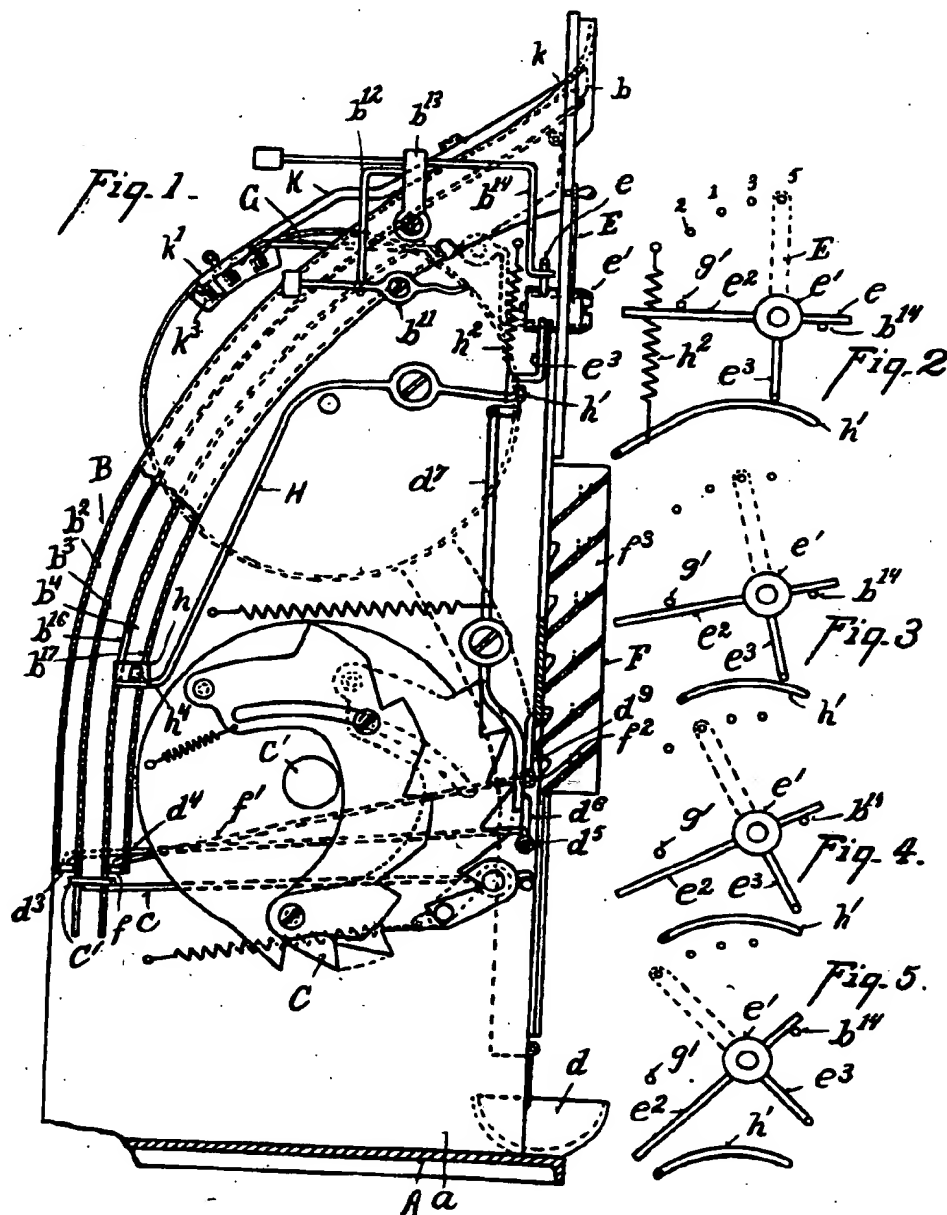
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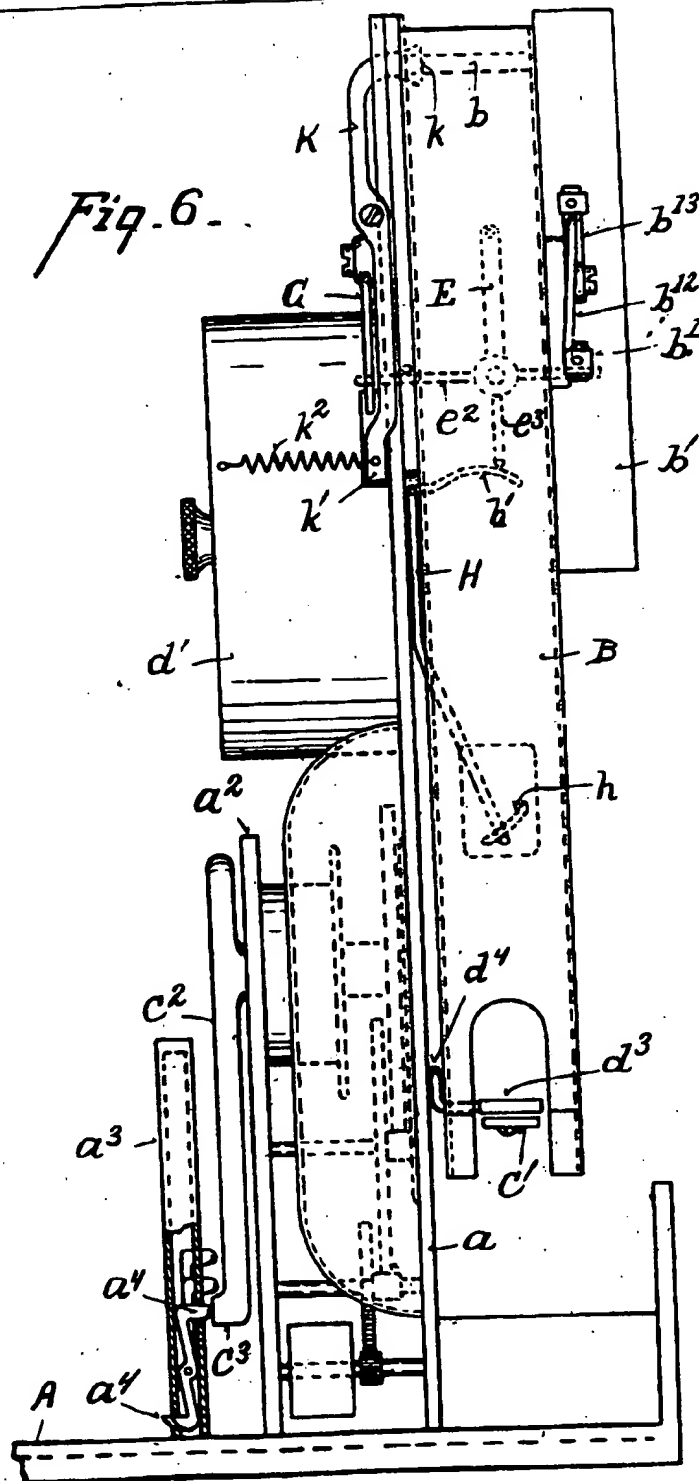
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SHEET 2.

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Fig. 6.



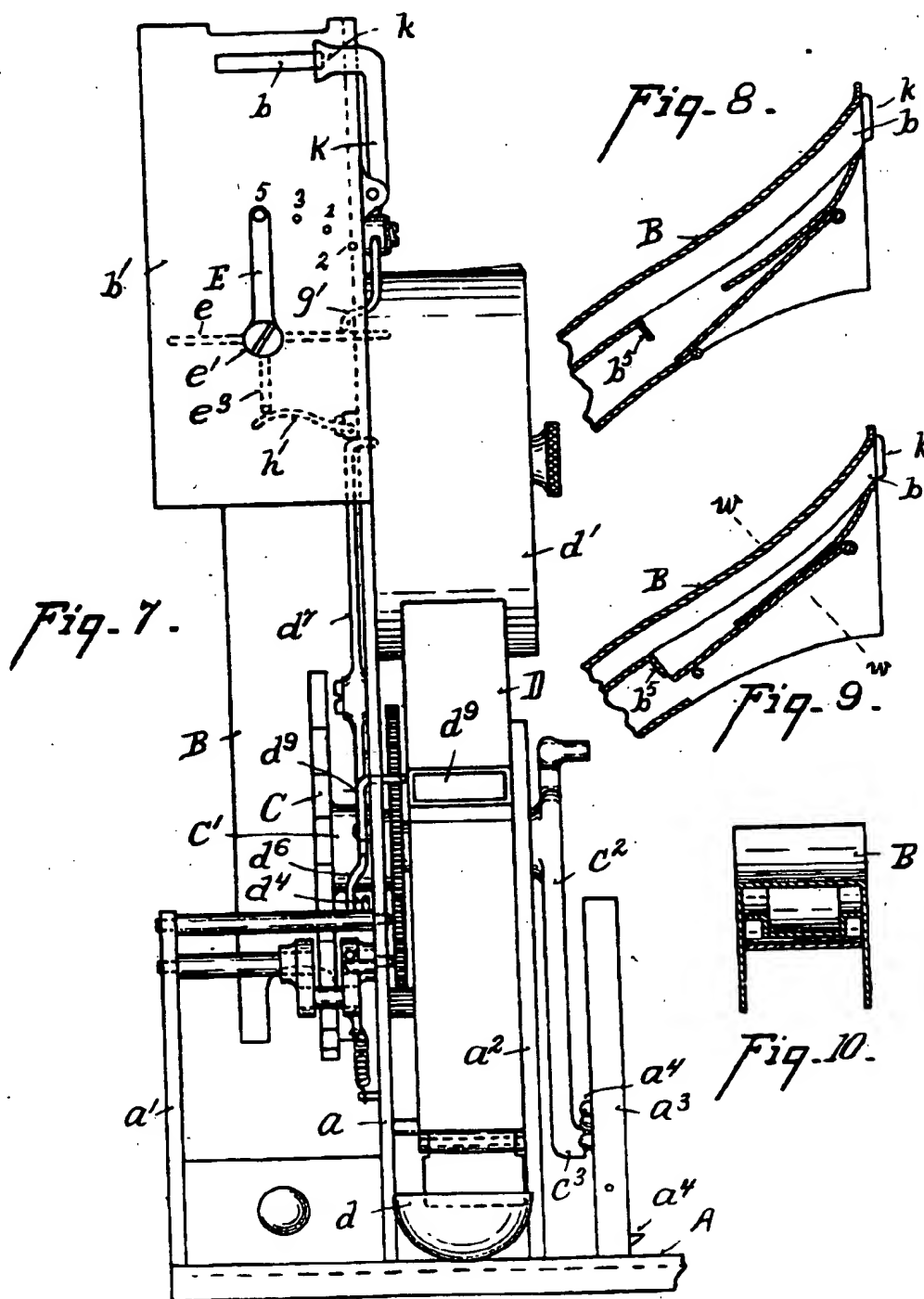
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SHEET 4.

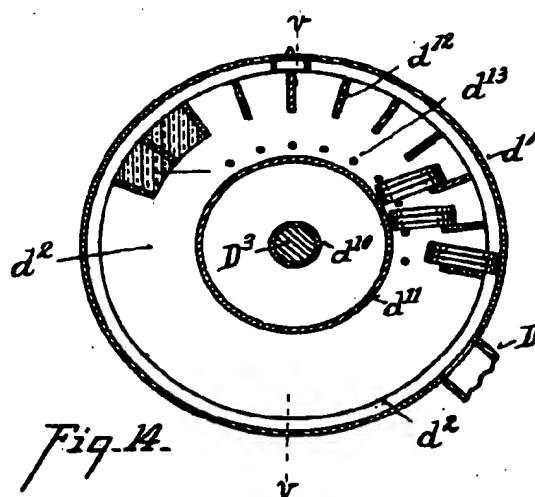
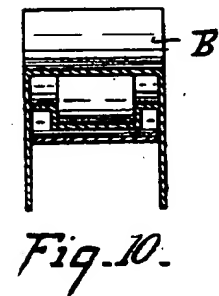
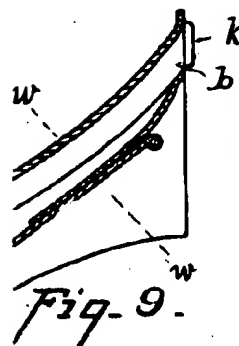
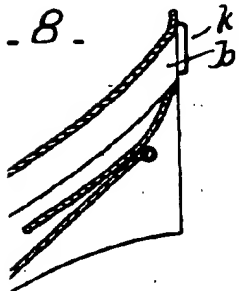


Fig. 14.

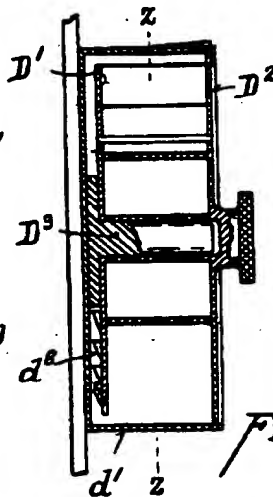


Fig. 16.

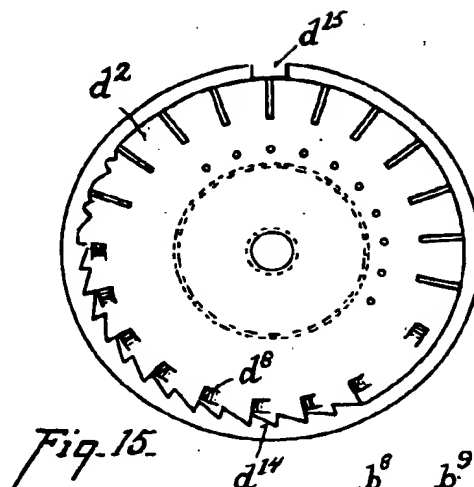


Fig. 15.

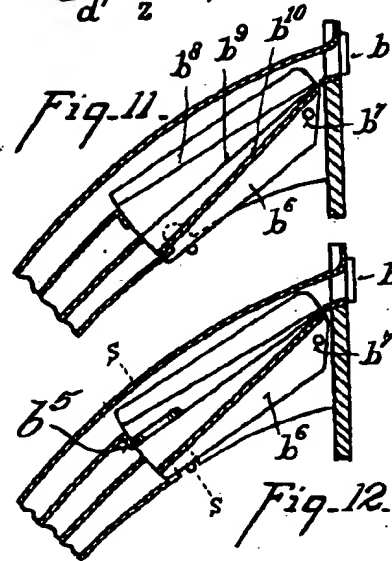


Fig. 11.

Fig. 12.

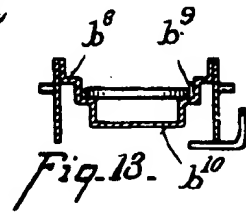


Fig. 13.